

Chips May Move Info Faster, Draw Less Power

As the microelectronics industry loads more components onto its integrated circuits, it faces the twin problems of higher power consumption and reduced speed.

A potential solution to those problems lies in some work underway in Device Research Department 1140 and Solid State Research Department 1150: make strained-layer superlattice (SLS) "chips," which would operate much faster and at lower power than those made from conventional semiconductor materials such as silicon or bulk gallium arsenide (GaAs).

Strained-layer superlattices consist of many very thin layers of crystalline materials. The layers are so thin that the atoms of one layer can be made to line up with those of the next layer without causing defects. Because atoms are not normally spaced in such alignment, the layers are strained into position. This phenomenon makes it possible to make semiconductor devices that have completely new strain-dependent electronic and optical properties (see SLS story).

Recent research by Jim Schirber (1150), Ian Fritz (1132), and Eric Jones (1124) showed for the first time the presence of light holes (lightweight, high-speed positive

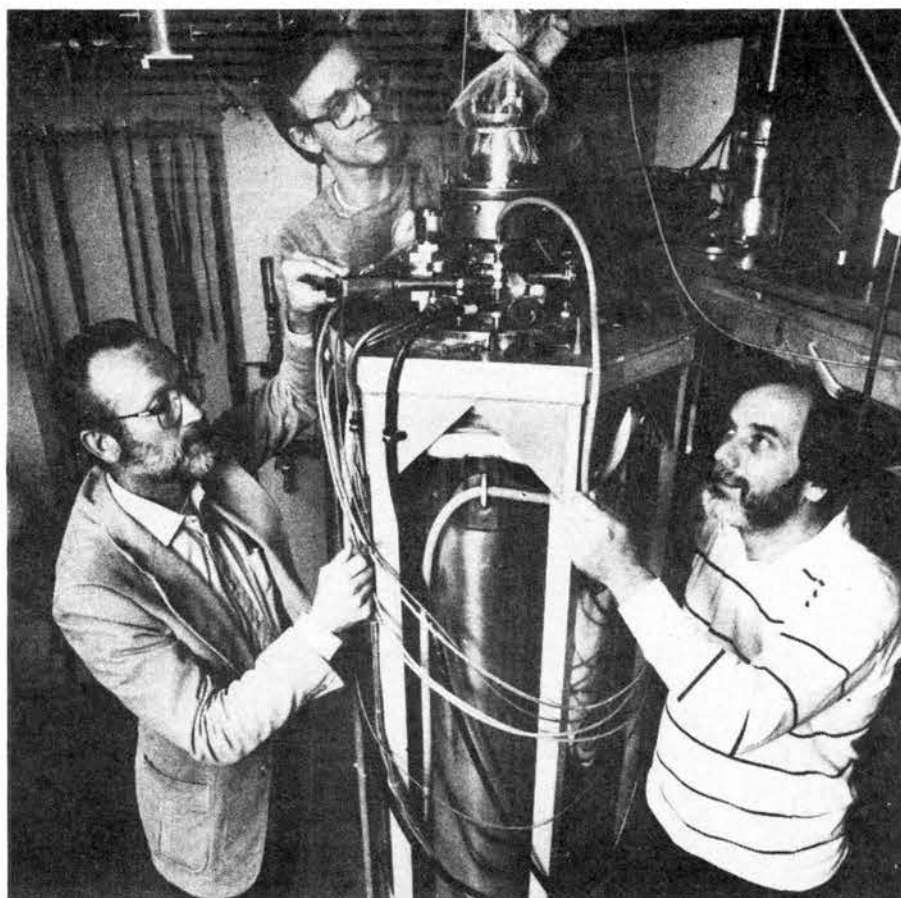
Theory of SLS

Strained-layer superlattice (SLS) semiconductors, whether grown by the molecular beam epitaxy (MBE) method or the metal-organic chemical vapor deposition (MOCVD) method, have a crystalline quality comparable with pure bulk semiconductor materials. They are composed of many alternating, ultra-thin layers of different types of crystalline materials (LAB NEWS, June 12, 1983).


Under normal circumstances the distance between the atoms on one layer would be different from the corresponding "atomic spacing" of the next layer, producing imperfections that interfere severely with the performance of the device. However, the SLS layers are so thin that their atoms align easily by elastic strain during the growth. This makes it possible for the first time to "tailor make" semiconductor materials with a new range of electronic (such as "light holes") and optical characteristics.

charge carriers) in specially prepared samples of SLS material consisting of alternate layers of GaAs and indium gallium arsenide. Light holes are required in combination with (inherently) light electrons if high-speed, low-power complementary logic devices are to be developed (see Light Holes story).

The research confirmed that the internal strain present in SLS semiconductors alters the material's electronic band structure, allowing conduction by light holes. Two batteries of tests — one measuring the mass of the holes, the other measuring the mass of the charge carriers — verified the presence of light holes in SLS made from alternate



THIS CRYOGENICALLY COOLED CHAMBER was the site of tests that confirmed the existence of light holes, which could lead to faster, lower power semiconductors built of SLS materials. Three Sandians involved in the tests were (from right) Eric Jones (1124), Don Overmyer (1151), and Ian Fritz (1132).


LAB NEWS

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SANDIA NATIONAL LABORATORIES
MARCH 14, 1986



United Way of Greater Albuquerque

Gloria Griffin Mayory, Ph.D. Chairman of the Board Michael Brown, Vice Chairman Marinda Hurdell, Secretary Tony Bui, Treasurer John M. Wall, President

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January 24, 1986

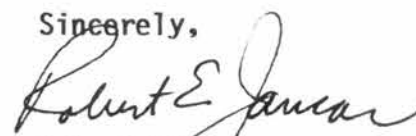
TO ALL EMPLOYEES OF SANDIA NATIONAL LABORATORIES:

Sandia employees have a long history of community spirit, pride, and generosity. Once again you have demonstrated this through your generous contributions to the 1985 United Way of Greater Albuquerque campaign. Together you raised over \$1,000,000 for vital human service programs in Albuquerque. This amounts to approximately 20% of the total amount raised in the 1985 campaign.

In addition to your financial support, many of you also gave of yourselves by volunteering your time and efforts to the campaign.

Thanks to you, United Way can continue to face problems in our community. Thanks to you, United Way can continue to support programs that help individuals grow stronger and more self-sufficient. Thanks to you, programs funded by United Way can make the community a better place to live. Thank you for your continued dedication, generosity and true community spirit.

Sincerely,


 Robert E. Jancar
 1985 Campaign Chairman

(Continued on Page Two)

Antojitos

The Perils of Pronunciation Several decades ago, in a classroom on the plain, we studied a list of often-mispronounced words used as a test to select radio/TV announcers for the Big Time—the major networks. Maybe it was that experience, maybe it was a bit of training as an actor, maybe it was an early (and probably unfortunate) predilection for the beauty, romance, and challenge of words. Whatever, I'm tuned in to pronunciations, and I cringe a lot.

It's true, of course, that dictionaries abandoned—as hopeless, likely—the task of prescribing "proper" pronunciations. Today, the lexicographers content themselves with describing the way or ways in which most people pronounce most words. With a difficult word, anything goes.

It's reached the point that I now go out of my way to avoid using certain words because it hurts me to pronounce them "wrong," but they've been pronounced that way so often that few people recognize them if they're pronounced right.

Nevertheless, in the naive hope of narrowing the abyss between the careful and the careless pronouncer, here are some words that fit that category: One is "err." Ideally, it's "ur," but if you don't say "air," you'll be assumed ignorant. Another is "primarily"—should have first syllable accent. Same with "exquisite." There's "forte"—one syllable unless you're contrasting it with "piano" in music. "Palm" and "almond"—silent l. It's "genealogy" with an "al" sound, not an "ol," in the middle. "Incognito" has a second syllable accent—"in COG nee toe." Then there's a family of words with "f" sounds that usually end up as "p" sounds: "diphtheria" is pronounced "dif-ther-i-a," not "dip-ther-i-a," and "ophthalmologist" is pronounced "off-thal-mol-o-gist," not "op . . ." and so on.

* * *

Aboard the U.S.S. Sandia The person who monitors the classified document storage cabinets for Organizations 3000 and 5000 is, of course, the Davie-Jones locker.

* * *

True Story Employee with "Sandia Lab" cap in shopping center in Midwest. Sweet little lady comes up to him and says, "I have a lab. I even belong to the lab club. But I never heard of a Sandia Lab. What color are they?"

•BH

Continued from Page One

Faster Chips Foreseen

layers of indium gallium arsenide and GaAs.

"We plan to use this effect to demonstrate the feasibility of fast-switching, low-power devices," says Roger Chaffin, manager of Device Research Department 1140. "It will be an important demonstration of the potential that exists for future SLS devices.

"As industry increases the number of transistors on a chip, power consumption

becomes more important," he adds. "Each transfer may draw only one milliwatt, but if there are one million transistors on a chip, that means 1000 watts overall."

The supporting theory behind the new Sandia development — initiated two years ago by Gordon Osbourn (1132) — was validated in tests on crystals grown by Bob Biefeld, Timothy Drummond (both 1154), and Ralph Dawson (1141).

Fun & Games

Photography — Dave Bushmire (2157) is planning a photography course for beginners, which will include topics such as choosing a camera and film, composing your shots, using artificial light, and improving your (Unusual Vacation?) pictures. The class will meet from 7-9 p.m., starting April 1st and continuing on the 8th, 15th, and 29th. The cost is \$25. For more info, call the Recreation Office (4-8486).

* * *

Softball — The softball season is almost upon us and the Base must be loaded with eager batters. Coaches will be meeting at the Coronado Club at 5 p.m. next Tuesday, March 18, to organize teams. All interested players are invited to attend. Team rosters and fees will be due by April 9. If you have any questions, contact Joey Gutierrez at 6-2072.

'Light Holes': Key to Faster Semiconductors

Historically, integrated circuits, or ICs (often referred to as silicon chips because most ICs were — and still are — made of silicon) were large-scale, which means they contain 1000 to 10,000 separate electronic components, or very large-scale integrated (VLSI) circuits, which contain 10,000 to a million components on a dime-sized square chip. Researchers today are experimenting with ways to pack even more components onto ICs: for example, new semiconductor materials to replace silicon; ever-thinner connectors between components (down to micron — millionth of a metre — size) or even less.

All ICs are formed of a single crystal of pure semiconductor material that has been doped (had impurities added) to enhance its electrical conductivity. Doping either adds mobile electrons or creates holes (electron deficiencies, which attract electrons). Both of these are called charge carriers; they make up an electrical current and move through the semiconductor material to perform a given task.

In compound semiconductors, holes, which carry positive charges and which act as the predominant charge carriers in these p-type materials, have much lower mobility than do electrons. And this lower mobility affects the operating speed of a device. After all, the operating speed is largely determined by the speed with which charge carriers move through the semiconductor material. In n-type materials, the predominant charge carriers are electrons, which carry negative charges. Because their mass is low, the electrons in gallium arsenide and similar n-type materials can move three to five times faster than they can through the motion of holes in silicon.

That's because the corresponding holes in the p-type material contained in the device are relatively heavy. For this reason, it has not been possible to make low-power, high-speed complementary circuits in p-type material because a relatively high level of power is required to overcome the natural slowness caused by the holes' extra mass. (Complementary logic devices, which rely on both n-type and p-type conduction, use very low power levels. However, for these devices to have high speed, both electrons and holes must have high mobilities and the currents through the n-channel and p-channel transistors must be comparable.)

Conventional compound semiconductor materials, including gallium arsenide, are being considered for many future computer applications. Although these contain high-speed light electrons as charge carriers, they do not contain light holes.



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French Scientist Studies Turbulent Flows

Attracted by the Combustion Research Facility's international reputation, Philippe Magre chose to become one of the foreign scientists studying turbulent reacting flows within a combustion chamber.

His team included Baldeo Ruttun from CNRS (Centre National de la Recherche Scientifique) in Poitiers, and Bill Butler from the University of Washington. Baldeo and Bill have since left for home, but Philippe, from ONERA (Office National d'Etudes et de Recherches Aeronautiques), the French version of NASA, is staying at the CRF for one year as part of an ongoing Sandia-ONERA exchange agreement.

Now halfway through his assignment, Philippe shared some of his impressions of work and life here in general. He chose Sandia through a colleague of his at ONERA who knows Dan Hartley (8300), Peter Matern (8350), and Sheridan Johnston (8351).

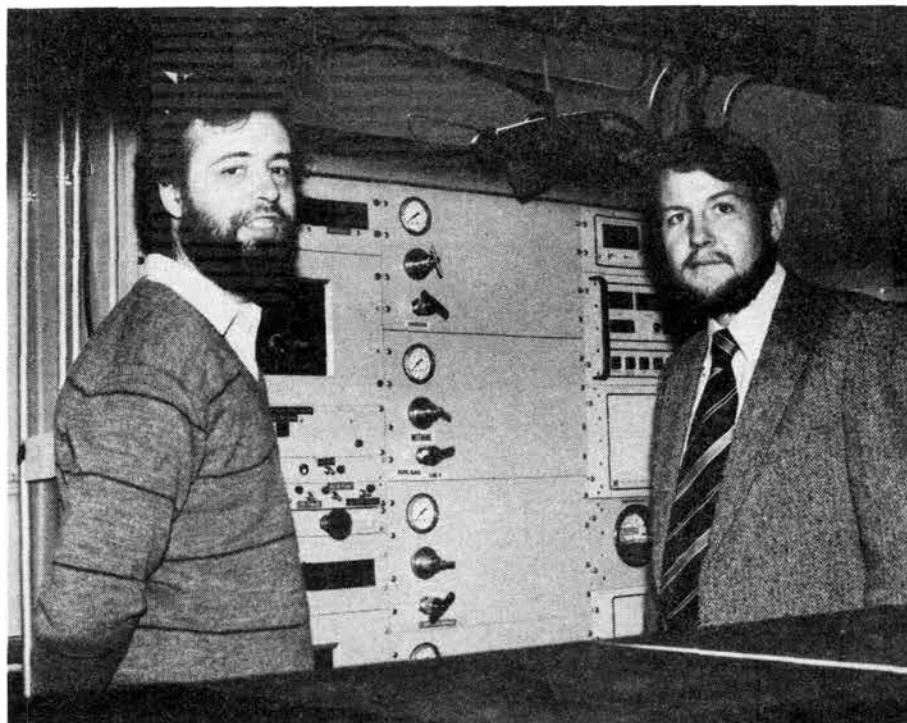
"Sandia is well known internationally for its capabilities in laser diagnostics," says Philippe, who is based in Combustion Physics Division 8351. "It is strategically located near a number of major universities, it has good equipment and capabilities. Also one does not need a clearance — many other U.S. facilities are located within military bases where a foreigner cannot get in."

Philippe explains that his group back at ONERA studies combustion in gas flows, using laser diagnostics to study turbulence. At Sandia he is increasing his expertise with both theoretical and experimental aspects of laser diagnostics, particularly Rayleigh scattering and spontaneous Raman scattering.

"Not being specialized in laser diagnostics from the very beginning of my career, I have never stopped learning, and I have been learning a lot here in six months," says Philippe. "I am very pleased with my little group — the work is stimulating and we have good outside contacts. Bob Dibble [8351] arranges for me to meet many American scientists."

"Here at the CRF, the work conditions are very good because the lab is built around the lasers. In France you can find some labs, especially the older ones, that are not as well adjusted to new techniques. Here you have a lot of equipment that provides the capability of exploring many different areas very quickly. In France it would take six months just to start up an experiment because the groups working on all these different laser diagnostic techniques are all spread out. Some are in Marseille, others in Paris, Rouen ... At Livermore, they're all gathered together in one place and dedicated to combustion studies."

ONERA, Philippe explains, has about 2000 employees, with 1200 in the main office in a Paris suburb. "I am still paid by ONERA, but I received a grant from the French Ministry of Defense to supplement my income. My work both here and in France is to provide experimental data to validate numerical modeling of reacting flows and to improve our knowledge of these flows," he says. In other words, Philippe's expertise benefits both the Com-



VISITING SCIENTIST
Philippe Magre (left) works with Bob Dibble of Combustion Physics Division 8351 on studies leading to an improved understanding of turbulent flows in combustion chambers.

bustion Research Facility and ONERA.

A native of Paris, Philippe earned his engineering title from the University of Nancy and his doctorate from the University of Paris. He and his wife Eva and three-year-old son, Clement, live in Livermore. "Eva takes care of Clement, a fulltime job. Our son recently started nursery school two mornings a week, but since parents have to

stay at school once a week, Eva gets hardly any break at all," he laughs. "We do get to travel on weekends — to San Francisco, Yosemite, Los Angeles, the Gold Rush towns. All short trips because of our son. Although Eva and I have both been to the East Coast before, it is the first time for us to visit California, which we enjoy very much."



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SOME 90 PORTOLA Avenue School fourth and fifth graders created a 250-foot-long mural of their impressions of the community and their interests for Sandia's 30th anniversary Family Day. The project was guided by Stewart Wavell-Smith (8265), who visited the school to give a career talk on graphic arts and illustrations. He provided the felt tip pens and paper, and the students spent two hours filling the rolls of art paper. The artwork hung in MO21 for Family Day, with Stewart and members of the Family Day committee painting background colors around the drawings.

It's Tougher & Better

It had to be a secretary who coined the adage, "When things go right, I get overlooked; when things go wrong, I get blamed."

To ensure that fewer things go wrong at Sandia — at least those things actually caused by secretaries — Secretarial Supervisors Carol Kaemper (21-1) and Shirley Dean (22-2), and Management and Staff Development Division 3523 have recently upgraded the intensity, scope, and duration of training for new secretaries.

The upgrade was no hit-or-miss endeavor: It was based on information gathered from the current secretaries and supervisors via a questionnaire that asked "What are secretaries doing well?" "What are they not doing well?" and "How might the training be improved?"

The questionnaire was designed and tested by an ad hoc task force — Debbie Gonzales (3523), Connie Jackson (21-1), and Mary Courtney (22-2). Other members were Robin Cassell (now 1810), Jane Elson (2311), Charla Carter (6451), Betty Mowery (7545), and Claire Ford (now 3521).

Nearly 70 percent of the secretaries surveyed responded, and the data were analyzed by Div. 3523 with the help of Kathy Andreson, a UNM PhD candidate serving an internship at Sandia last summer.

"Training gave our project high priority," notes Shirley. "So we were able to bring about some major changes in our training program very quickly."

"Frank Gallegos [3523 supervisor] was quick to recognize that upgrading the quality and quantity of secretarial training would eventually benefit every organization at Sandia," adds Carol.

On the basis of the survey analysis, the secretarial training course is now more intense: It includes resource instructors who are Sandia experts in the modules they teach (see Resource Instructor box).

The survey also indicated that the scope of the course should be wider than it used to be. The biggest expansion comes in word processing — more of it throughout all aspects of the course. Document control training has also been expanded so that new secretaries understand their roles in running a classified document accountability station and are able to survive a "mini-security audit." They also spend five half-days with a real live secretary and discuss what they learned from the experience when they get back to class.

And the duration of the course is now five to six weeks (rather than three to four) in order to accommodate all the changes.

"When Sandia hires secretaries, we get the cream of the crop," says Carol. "We pick only one of every seven applicants. They're well educated too, these days — most of them have some college, many have bachelor's degrees, a few have master's. And they all have a good deal of experience when they arrive here."

"So our task is to mold this excellent raw material into good, strong secretarial support," adds Shirley. "That's the real goal of



IN THE SHADOW of the demanding boss, the frazzled secretarial trainee looks to the secretarial training coordinator for aid. That coordinator, here and in real life, is Debbie Gonzales (3523), who played a major role in the recent upgrading of the secretarial training program. Frazzled trainee is the usually unruffled Debbie Matlock (22-2). And hands of demanding boss belong to Frank Gallegos, supervisor of Management and Staff Development Division 3523 (Frank really supports secretarial training, really showed that support in the revision of the program, and is really not demanding).

Resource Instructors For Secretarial Training

Topic	Specialist	Document Control:	
Travel	Melodie Owen (4021)	Handcarry	
	Frank Ortiz (152)	Procedures	Mary Courtney (22-2)
	Esther Duncan (152)	Audit	Maria Owens (3461)
Time Cards	Connie Jackson (21-1)		Maggie Lucero (3461)
	Theresa Phelps (152-1)	SAND Reports	Robin Cassell (1810)
Vugraphs	Mary Courtney (22-2)		Juanita Evans (6430)
	Nancy Finley (3523)	Sickness	
Forms/		Absence	Sue Tenbroeck (3321)
Procurement	Ellen Edge (3745)	Supervisor	
Correspondence	Jan Nunziato (5000)	Expectations	Shirley Dean (22-2)
	Evelyn Ratcliff (6000)		Carol Kaemper (21-1)

the new training program. We believe we're making some major improvements."

Some of those improvements are also likely to be showing up soon at Sandia Livermore, where Tonni Nunley, supervisor of Secretarial Development Section 8022-1, is already working with her Albuquerque colleagues on packaging appropriate portions of the new training course for export to California.

The Return of Modern Jazz



"The last decade has seen a resurgence of interest within the US in modern jazz. After a nearly two-decade lull in the public's attention to the music, this interest is demonstrated, in part, by the rising popularity of regional jazz festivals. Several major cities, for the first time in at least two decades, now feature such festivals and, moreover, support major jazz radio stations. During the hiatus that preceded the new popularity, new generations of musicians emerged and jazz underwent drastic stylistic changes. Yet the music today has essentially the same character it had in 1956, the year that can be most clearly pinpointed as signalling the decline of jazz as popular music."

Geoffrey Jacques, *Freedomways*

Take Note

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Don Cook (1260) will be overseeing the field of light ion fusion at the 22nd Annual Symposium of the N.M. Chapter of the American Vacuum Society. The meeting is scheduled for April 29-May 1 at the Hilton and includes 15 other invited speakers — on topics such as smart sensors, scanning tunneling microscopy, laser fusion, and tokamaks. A three-day technical program includes papers on fusion technology, surface science, thin films, electronic materials and processing, and vacuum technology. The symposium chairman is Jay Fries, LANL, FTS 843-0076.

In conjunction with the NMAVS symposium, seven short courses will be offered April 28-May 1 at the Hilton. Hann Madden (1134), William Rogers (2515), and Warren Taylor (7241) are co-instructors for Basic Vacuum Technology. Diane Peebles (1823) and Hann Madden are teaching Surface Science. Other areas covered are: vacuum equipment/computer interfacing, vacuum leak detection, vacuum safety, vacuum joining and sealing techniques, and computer operations for vacuum equipment control. For more information, contact Frank Williams at UNM on 277-5431. Students are eligible for certificates of completion. Applications for scholarships should be made to Diane Peebles (4-1647).

Alan Swain (DMTS, 7223) was mentioned in an article on risk analysis techniques in the April issue of *Discover* magazine. Alan's work in quantifying probable human error through event tree analysis was used as an example of a technique that can be used in estimating the chances of error in a given situation. (At the request of DOE, Alan recently used event tree analysis to predict the probability of human error in a particular phase of the weapon

assembly process — the specific example cited by *Discover*.)

Folks in the outside world now have an opportunity to see the First Annual Mineral Spirits Show (LAB NEWS, Jan. 17). The Albuquerque Gem and Mineral Club will display the rock art at the club's 17th Annual Gem & Mineral Show on March 15-16 at the old Albuquerque Airport terminal (Yale SE). Show hours are 10 a.m.-6 p.m. on the 15th and 10 a.m.-5 p.m. on the 16th.

A new exhibition at the UNM's Maxwell Museum of Anthropology opens tomorrow, March 15, and runs through May. "The Greek-American Family: Continuity Through Change" is the first major exhibit on Greek-American culture to be presented in the U.S. It's a traveling display presented by Hellenic Horizons and the Grand Rapids Public Museum, and covers four historical periods. The exhibition examines how Greek ethnicity in America has been affected by complex interactions among the family, Greek institutions, and other societal forces.

Another new exhibit at the museum, "Maxwell Museum, You'll Love It!" features original art work and letters by Albuquerque-area children. The letters, drawings, and posters on display are the children's way of saying thanks to the museum's volunteer docents for their classroom presentations and gallery tours, and reflect the young artists' fascination with museum artifacts and their unique outlook on the world around them.

Museum hours are 9 a.m.-4 p.m. weekdays and 10 a.m.-4 p.m. Saturdays (closed Sundays and holidays). It's located on University Blvd., one block north of Grand Ave.

Friendship Force invites all of its members and friends to celebrate its Ireland Exchange with a dinner at the Tamarind Restaurant, First Plaza, tomorrow night at 6:30. The group will have the exclusive use of the dining room for the entire evening. Authentic Irish food and entertainment can be guaranteed for the price of \$10 per person. Tickets can be bought at the Friendship Force office downtown, from Peggy Walden (843-9457), or from Eloise Jacobson (255-1765).

Sandians who are Bernalillo County residents and are interested in becoming foster parents for children (infants through 18) are invited to an informational meeting at the NM Social Services Division, 2340 Menaul NE, at 7:30 p.m. on March 18. The children are currently in state custody because of abandonment, neglect, abuse, or voluntary commitment. For more information, call Richard Flores on 841-6174 or Virginia Johnson on 841-6181.

A magic-carpet ride through space and time over the Rio Grande will be presented this summer by UNM's Southwest Institute. From June 9-July 3, there will be 13 mornings of lectures and six days of field trips to Socorro and Taos. The focus will be on the Rio Grande drainage basin, the heart of New Mexico, and topics will include natural

history, mining, religion, art, artifacts, and urbanization. Undergraduate and graduate credits (audit, graded or non-graded status) in eight academic departments are available to participants. For the registration brochure, call 277-6133.

A grocery sack filled with the customer's choice of books for only \$1? That will be the final day's discount at the 16th annual Used Book Sale organized by the Friends of the Albuquerque Public Library. The sale runs from March 19-22. The lower level of the Main Library at 5th and Copper NW will be stocked with books, magazines, and records — all sold for a fraction of the original cost. A \$2 admission will be charged on opening night only, starting at 4:30 p.m. For details, call Mary Matteucci: 268-8678.

"Insights into Infertility," a symposium co-sponsored by RESOLVE of New Mexico and Serono Laboratories, will feature 20 workshops on the medical, emotional, and social aspects of infertility. The one-day symposium will be held tomorrow, from 8:30 a.m. to 5 p.m., at St. Paul's Lutheran Church, 1100 Indian School Rd. The fee is \$35. The contact person is Nancy Halvorson, tel. 345-1370.

On April 13, the Albuquerque Opera Auxiliary raises the curtain on "Carnicus" — the noble art of humbug — at the Coronado Club, from 12:30-3 p.m. This extravaganza is a combination carnival/circus complete with clowns, jugglers, puppets, magicians, musicians, bands, dancers, mimes, storytellers, balloons, favors, and door prizes. Then there's the "Putting on Heirs" fashion show and a buffet luncheon of Humbug-burgers, Barnumfurters, Phineas Fries, and Midway Salad. Tickets are \$5 for children; \$8 for adults. Reservations are to be called in at 256-1857 by April 7.

Help is available to those who have ended or are ending either a legal marriage or an important love relationship. A seminar on divorce, separation, and personal growth is planned for ten consecutive Tuesday evenings from April 1-June 3. For details on time and place, contact Walter Polt (266-3421) or Katie Fashing (247-2966).

Star Gazing

Missed Halley's Comet the first time around? Here's your chance to telescope in on the event of the century with an observational astronomy class. Although space is very limited (pun intended) and although an introductory session has already been held, it may be worth your while to call the Recreation Office (4-8486) about possible openings. Jay Moody will be the instructor on Thursday nights from 7-9 through April 10.

The N.M. Museum of Natural History is planning an overnight field trip to the Manzano Mts. to observe Halley's Comet on April 11-12 — when it is closest to earth. Daytime exploration of the natural history of the Manzanos is part of the \$70 package. Reservations are required: 841-8836.

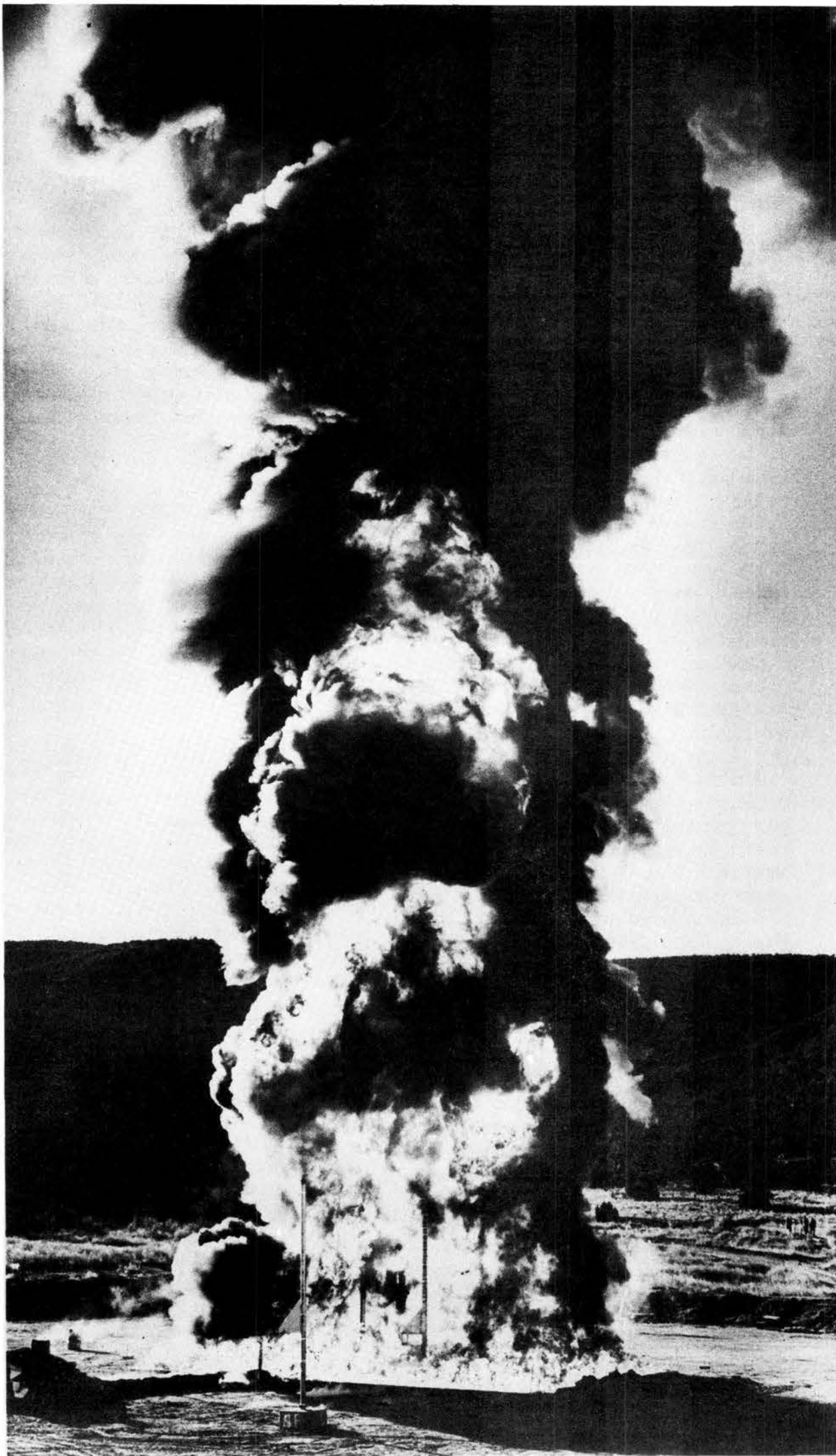


Here are a few current volunteer opportunities for employees, retirees, and family members. If you would like more information, call Karen Shane (4-3268).

ALBUQUERQUE POLICE DEPARTMENT is recruiting volunteers to serve as the second officer in patrol vehicles. Next training class starts in May. Upon graduation, commissioned reserve officers are required to fulfill a minimum of eight hours on patrol and four hours training per month.


JUNIOR LEAGUE OF ALBUQUERQUE, an agency to promote voluntarism, has acquired an IBM XT with DBase II and Lotus JLA needs a trainer who can teach staff to use the computer as well as to optimize use of the computer's capabilities.

SENIORS HELPING SENIORS needs volunteers to assist older persons with Medicare claims, appeals, supplemental health insurance, consumer protection, and wills.



PASSED THE BURN TEST — This redesigned prototype model of the Transuranic Package Transporter (TRUPACT), which will be used to ship radioactive wastes to the Waste Isolation Pilot Plant near Carlsbad, survived its trial by fire last month. The test involved suspending the prototype over 9000 gallons of aviation fuel (floating on two feet of water) and igniting the fuel. It burned for 45 minutes, instead of the required 30, and engulfed the TRUPACT in flames that averaged 1800°F.

Fortunes Told — And Spent

 "The Committee for the Scientific Investigation of Claims of the Paranormal [CSICOP] is a loosely organized collection of scientists, science writers and others who spend some of their spare time whacking away at what they consider to be 'pseudoscientific' hogwash. Their targets range from Unidentified Flying Objects and Extrasensory Perception to astrology, faith healing and creationism, with occasional potshots at Bigfoot, the Loch Ness monster, metal benders, poltergeists and Shirley MacLaine's views on reincarnation. . . . But what is the harm if people seek escape from

reality in easy explanations of the unexplicable? The Csicoppers have an answer. First, they say, a lot of money is wasted on horoscopes and clairvoyants, often by people who are least able to afford it. Moreover, some men and women actually base marriage, career and other crucial life decisions on pseudoscientific mumbo jumbo. Or, relying on faith healers or quack remedies, they put off seeing legitimate doctors until it is too late. Basically, says Kendrick Frazier [3161], a science writer who edits the *Skeptical Inquirer*, 'you have to debunk these wrong ideas to make room for the right ones. That's an essential part of science.' "

Alan Otten, *Wall Street Journal*

Unusual Vacation

Tanzanian Tall Tale

Most people climb Mt. Kilimanjaro for the exhilaration of a once-in-a-lifetime experience. "It's the highest mountain in the world that you can climb without technical assistance [crampons, ice axes, and ropes]," says Bill Davey (1533). "All you need is sturdy boots and strong lungs." In fact, he adds nonchalantly, "the climb is comparable to hiking the La Luz trail to Sandia Peak" — the elevation gain per day is the same, about 3500 feet.

So why do it? Why leave the Land of Enchantment for a \$4000 trip to East Africa? "Well, Mt. Kilimanjaro is one of those fabled places, like Everest," says Eric Russell (5255). "And the animal viewing is like being on Channel 5." After all, this is the land where the water buffalo roam, and the exotic mountain where troops of monkeys pass right through the overnight camps. And then there are the famed snows below the peak, the glaciers on the crater rim of Uhuru.

Kilimanjaro's 19,340-foot Kibo peak in Tanzania is "the place for setting a personal altitude record," says Bill. And at the overnight shelters, there are many groups of people with whom one can trade tall tales of other exotic peaks that were climbed and conquered.

Not the least of the preplanned and less noble incentives, according to Bill and Eric, is that the mountain can be conquered without using precious SNL vacation time. The Christmas-to-New Year's break is sufficient, and is the best time to go — it's the dry season south of the equator. That's just about what the duo did this past winter — see Serengeti story — together with 12 other members of the New Mexico Mountain Club.

"The main reason most people don't make it to the top is the cold," says Bill. The wind can be ferocious, and even on a mild day of 20 degrees F, hikers have to wear polypropylene underwear, a windbreaker, a

Sympathy

To Dyan Clements (7263) on the death of her grandmother in Wisconsin, Feb. 18.

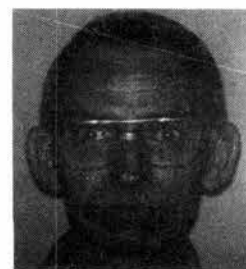
To Paul Martinez (1531) on the death of his mother in Alamosa, Colo., Feb. 21.

To Ashley McConnell (7170) on the death of her mother in El Paso, Feb. 21.

To Curtis Domme (7862) and Elizabeth Zender (2632) on the death of their father, and to Edward Domme (2620) on the death of his brother in Mesa, Ariz., Feb. 28.

To John Rowe (5324) on the death of his father in Albuquerque, Feb. 26.

Death



William Hagemeyer of Transportation Division 3423 died suddenly Feb. 23. He was 52.

He had worked at the Labs since May 1980.

He is survived by his wife.

sweater or two, and wool pants, gloves, and a hat.

The climb starts out mildly enough. The terrain west of the mountain at the base elevation of 5000 feet, says Bill, is "semi-arid and looks and feels just like New Mexico." Yet the flora and fauna are just different enough to keep one aware that this is the Dark Continent. For one, there are the flat-topped acacia bushes and 20-foot heather trees. For two, there is the rain forest.

The first three days are "not that bad," says Bill. "Most of the time," says Eric, "is spent just getting closer" to the summit. The 14-member group had 5 guides and 15 porters, each balancing a 60-pound duffel bag on his head, to haul sleeping, cooking, and food supplies.

The fourth day "is the real killer," muses Bill. "You get up at 1 a.m. and they give you practically nothing to eat for breakfast, just gruel, so you don't throw up on the mountain." All this after sleeping poorly. Everyone has slight headaches.

"In the dark you start on the final ascent," says Bill, "with flashlights in hand." The guides carry kerosene lanterns. "It's very slow going at those altitudes," says Bill. "You pause every few steps for a few breaths."

It gets "steep, hard, and cold," adds Eric. The hike has to go at the pace of the slowest person. This time, the youngest — 30 years old — got sick and had to turn back at 17,000 feet. But two "exceptionally fit" hikers in their early 60s made it, says Bill. And Eric carried a movie camera all the way to the top; another fellow traveler had a movie camera and a tripod.

Above the treeline, "the terrain is like a moonscape," says Bill. And then dawn overtakes the climbers and disperses the cloud cover, he reminisces, creating "a spectacular sunrise over Mawenzi," the second of the dromedary peaks. It leaves them even more breathless.

"To claim Kilimanjaro," says Bill, "all you have to do is reach the crater rim of Gillman Point, at 18,700 feet. But four of us had some energy left and went on to the highest point of the crater rim at 19,340 feet." This was the triumphant time of hoisting the club's flag and taking pictures, every minute of the half-hour savored and recorded. Not much time even for sitting down . . . but Bill did use the opportunity to "have a cigarette at the top and eat whatever food was left."

And then comes the toughest part. "Although your lungs get a break going down," says Bill, "it's harder on your knees."

On the fifth and final day, the hikers have to descend all the way back to the hotel.

And what's left, now that the Big K has been conquered? "There are lots of mountains in Colorado, Washington, and New Mexico," says Eric. "It's not all altitude; some of the low ones are quite hard."

And what does it take to train for such ambitious climbs? "I stay, or try to stay, in condition all the time, by climbing on weekends," says Eric. "What has helped a lot is riding my bike to work from Tramway and Lomas — and back home again, uphill all the way."



A FIRST GLIMPSE of the famous snows of Kilimanjaro: Bill rests on his laurels — not easy at 18,700 feet.

Green Chiles in the Serengeti

Jetting 12,000 miles back home after climbing Kilimanjaro would've been anticlimactic, so Bill Davey and Eric Russell spent their Christmas holidays with their fellow climbers on a camera safari through the national parks of East Africa.

A picture postcard of Christmas breakfast at the Serengeti plain campsite: green chiles with eggs and a few candy canes. Surrounding them are migrating herds of wildebeest, dik-diks, lions, elephants, rhinos, and water buffalo.

The challenge to taking pictures was that "the lions slept 20 hours a day," says Bill. "And by the time we'd open the windows of the two VW minivans, we'd get a lot of rear-end shots of the other animals." Nevertheless, they did get a rare shot of a cheetah and then of a hyena lunging on a gazelle.

"The best place for photography was the huge 2000-foot-deep Ngorongoro crater near Olduvai Gorge, which

encloses a captive population of wildlife that can't migrate out," says Bill. This was their chance to nuzzle up for some literal beefcake.

The Masai Mara by the side of a river in Kenya was the setting for the New Year's celebration, with Masai warriors — complete with spears and necklaces — lighting fires around the campsite and standing guard against lions and water buffalo. Someone had brought two bottles of champagne, but the potion was warm and no one wanted to drink it, says Eric.

Next on the list was Lake Nakuru, home to flocks of flamingoes and now better known because of a scene filmed for the movie *Out of Africa*.

The ultimate wrap-up of the trip was the opportunity to dine on game prepared at the lodges. Marinated wildebeest, zebra, and topi (a plains antelope) were all on the menu. Last came the fabulous restaurants of Nairobi, which gave them all a chance to sit back and digest their safari experience.



A GOOD DRIVER knows the lay of the land — and the lions. And a photographer's pride and joy is catching the latter's eye.

Events Calendar

March 14-15 — Samuel Beckett's "Endgame," 8 p.m., UNM Experimental Theatre, 277-4402.

March 14-16, 21-23 — "Song of Halley's Comet," a folkloric musical celebration of the arrival of Halley's Comet; 8 p.m. Fri.-Sat., 2 p.m. Sun.; Stage I, University of Albuquerque, 831-8190.

March 14-23 — "Don Perlimplin" & "The Santero's Dream Woman," La Compania de Teatro de Alburquerque; 8 p.m. Fri.-Sat., 3 p.m. Sun.; Nuestro Teatro (3211 Central NE), 256-7164.

March 14-23 — "Happy End," New Mexico Repertory Theatre; 8 p.m. Tues.-Sat., 2 p.m. matinees Sat.-Sun.; KiMo, 243-4500.

March 14-23 — "A Gentleman and a Scoundrel"; 8 p.m. Tues.-Fri., 6 & 9 p.m. Sat., 2 p.m. Sun.; Albuquerque Little Theatre, 242-4750.

March 15 — "Sweet Honey in the Rock," a cappella group from Washington, D.C.; presented by Afro-American Student Services; 8 p.m., Popejoy Hall, 277-3121.

March 16 — Book signing party, *Determination* author Jesse Castaneda, *Los Reyes* authors Roberto and Debbie Martinez, 1 p.m., South Broadway Cultural Center, 848-1320.

March 16 — Movie time at the KiMo, Love to Laugh Series; "The World of Henry Orient," American (1964); stars Peter Sellers; 7 p.m., KiMo.

March 17 — Showtime at the KiMo, Something Special Series; concert, Aspen Wind Quintet and the New Mexico Symphony Orchestra; 8 p.m., KiMo, 766-7816.

March 17 — St. Patrick's corned beef and cabbage dinner, annual benefit for the Good Shepherd Refuge; continuous entertainment; adults \$6, children \$3; 4-8 p.m., Convention Center, 842-8473.

March 19 — St. Joseph's Feast Day, Harvest and Buffalo Dances all day, Laguna Pueblo, contact pueblo.

March 21-22 — Southwest Ballet Co., "Repertory at Rodey," 8:15 p.m., Rodey Theatre, 277-4402.

March 21-23, 28-30 — "The Importance of Being Earnest"; 8 p.m. Fri.-Sat., 6 p.m. Sun.; The Vortex (Buena Vista & Central SE), 247-8600.

March 22 — Folk concert, sponsored by the New Mexico Folk Society; features many local musicians, admission by donation; 8 p.m., Heights Community Center (Buena Vista SE), 255-3758.

March 23 — "Palm Sunday Meditations," New Mexico Symphony Orchestra Sinfonietta concert; Neal Stulberg, conductor; music of Bach and Faure; 3 p.m., First United Methodist Church (4th and Lead), 842-8565.

March 23 — Movietime at the KiMo, Boy Meets Girl Series; "History Is Made at Night," American (1937); Charles Boyer, Jean Arthur; 7 p.m., KiMo.

March 24 & 28 — Juggling show by Lynn Eaves, 2-2:30 p.m., South Broadway Cultural Center (1025 Broadway SE), 848-1320.

March 25 & 27 — Puppet show by Loren Kahn, 10-11 a.m., South Broadway Cultural Center.

March 26 — Voice recital; Bradley Ellingboe, baritone; Richard Bado, piano; music of Bach, Mozart, Grieg, and Ives; 8:15 p.m., Keller Hall, 277-4402.

March 26 — Lecture, "An Aerial View of New Mexico," by Paul Lohsdon (photographer); admission by donation; 7 p.m., KiMo, 841-8836.

March 27-29 — New Mexico Hunter-Jumper Horse Show, State Fairgrounds (indoor arena).

March 27-30, April 3-6 — "Joseph and the Amazing Technicolor Dreamcoat," a contemporary family-oriented musical; 8:15 p.m. Thurs.-Sat., 2:15 p.m. Sun.; Popejoy Hall, 345-6577.

March 28 — Concert, traditional music of Eastern Europe; Svirka, a Balkan women's chorus; New Shtetl Band (traditional Jewish music); 8 p.m., KiMo, 848-1374.

March 29 — Easter Parade, followed by all-day entertainment; 10 a.m., Old Town area.

March 29 — Pops concert, New Mexico Symphony Orchestra; Ray Charles, guest artist; 8:15 p.m., Kiva Auditorium, 842-8565.

March 29-30 — "Celebration of Dance," New Mexico Ballet Co.; 8 p.m. Sat., 2 p.m. Sun.; Albuquerque Little Theatre, 242-4750, 884-9443.

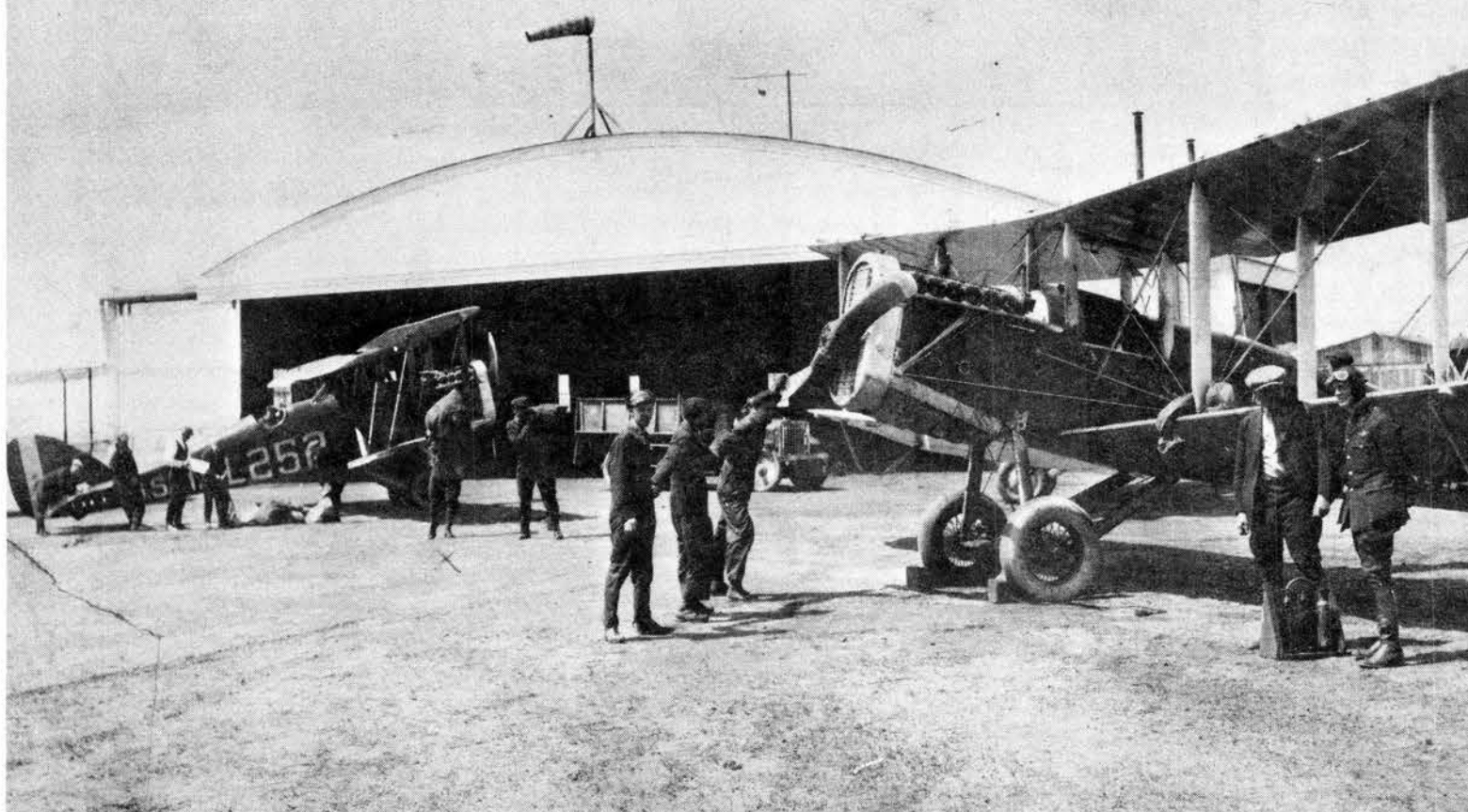
March 30 — Spring Corn Dance (Cochiti, Jemez, Santa Ana); Easter dances (Laguna, San Ildefonso, Zia, Nambe, Picuris, Pojoaque, Santa Clara); contact pueblos.

March 31 — Concert, Chamber Orchestra of Albuquerque; Anthony Templeton, violin; David Oberg, conductor; Handel, Mozart, van Wassenaer, C.P.E. Bach; 8:15 p.m., Albuquerque Little Theatre, 247-0262.

April 1 — Gala Concert & 30th Anniversary Celebration, Albuquerque Youth Symphony; features Albuquerque guest artists and celebrities; 8:15 p.m., Keller Hall, 277-4402.

April 11-12 — "Sleeping Beauty," Ballet West of New Mexico with the New Mexico Symphony Orchestra; Popejoy Hall, 842-8565.

Favorite Old Photo



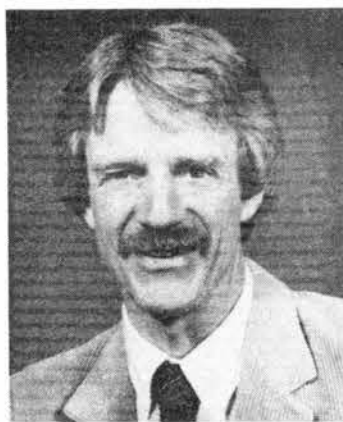
Only 18 years after Kitty Hawk, on Feb. 22, 1921, the first air mail arrived in Cheyenne, Wyoming. That's my father-in-law, H.V. Kimzey (near the wingtip of L252), carrying a sack of mail. He was a mechanic at the time. The aircraft are WWI DH-4s, designed in Britain but built in the U.S. in 1918 and incorporating an American 12-cylinder Liberty engine. In the war they were fitted with two fixed forward-firing Marlin 30-cal. machine guns, a rear gunner's cockpit with twin 30-cal. Lewis machine guns mounted on a swivel ring, and two bomb racks for 50-pound bombs. For carrying the mail, the cockpit was revamped into a compartment for 600 pounds of cargo. My father-in-law is 85 now and retired in Torrington, Wyoming. He's seen a lot of change in his lifetime.

—Kenneth Payne (5123)

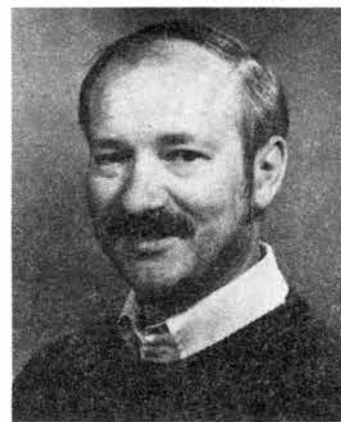
MILEPOSTS

LAB NEWS

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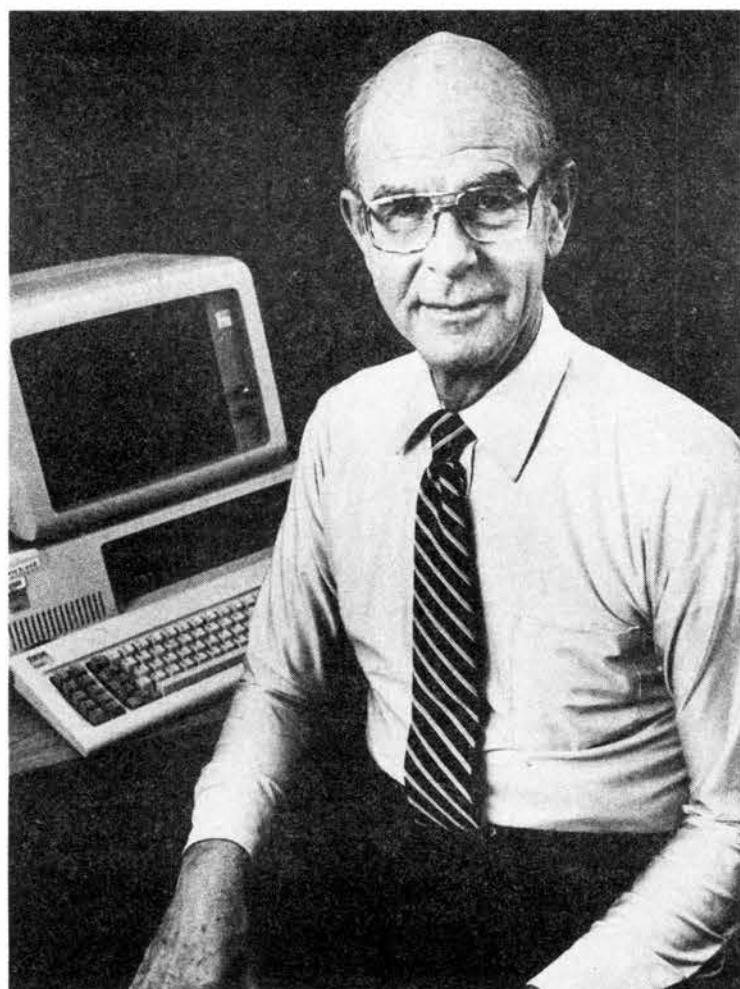
Michael Callahan (2345) 10



Ken Bell (7541) 10



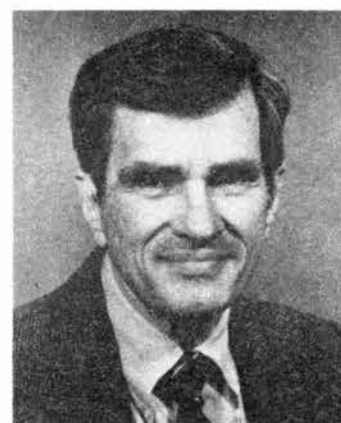
Jim Phillips (5113) 35



Paul Kirby (3142) 35



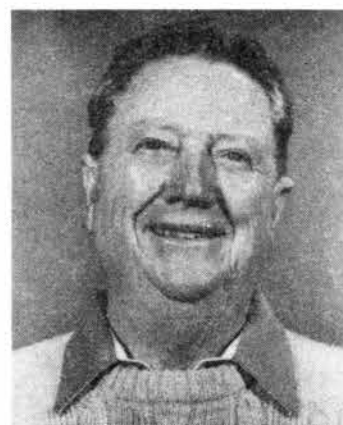
David Varoz (3428) 10



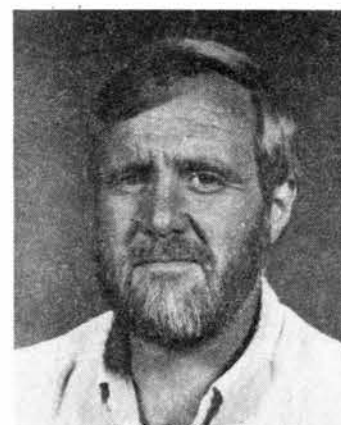
Dick Heckman (7241) 25



Paul Erickson (2814) 10



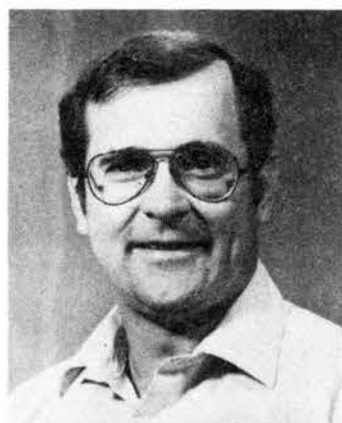
Paul Stickler (5233) 35



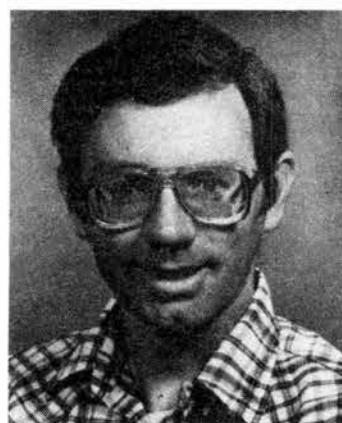
Jeff Swegle (1531) 10



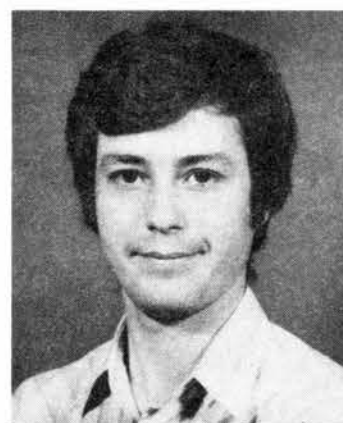
David Dellinger (3423) 10



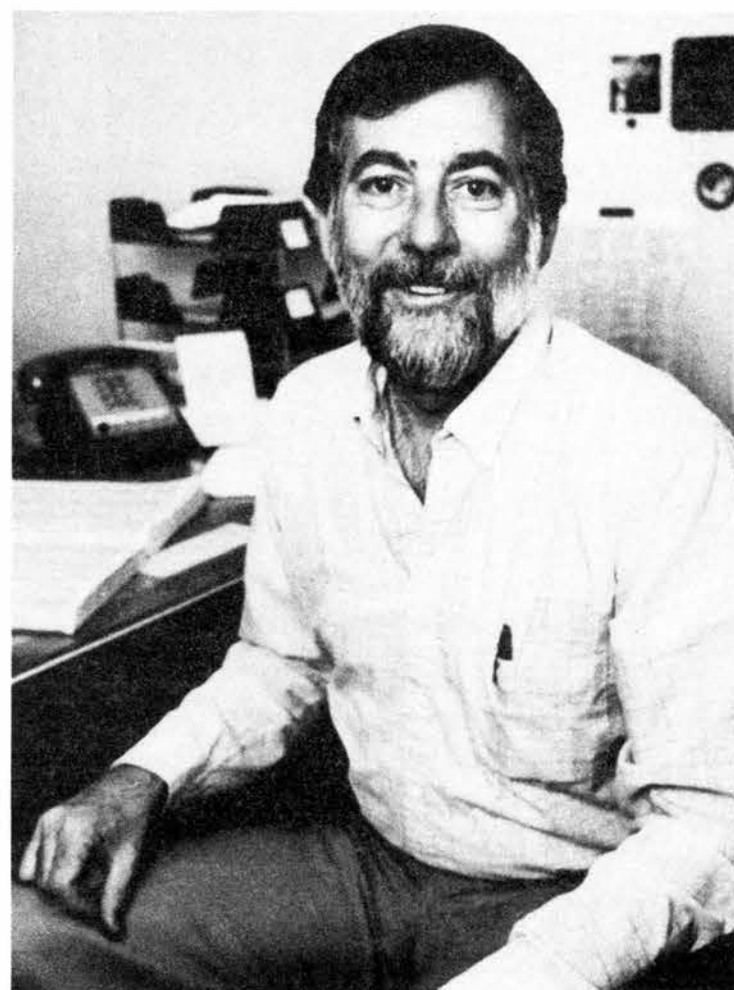
Dan Gregory (7572) 10



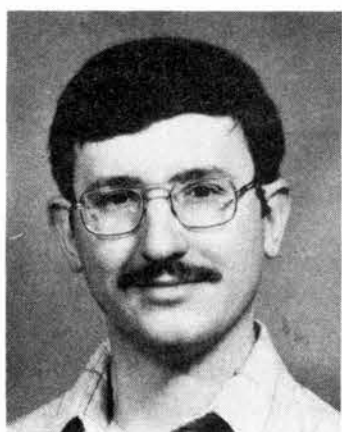
Ray Patrick (5242) 15



Martin McDaniel (3313) 10



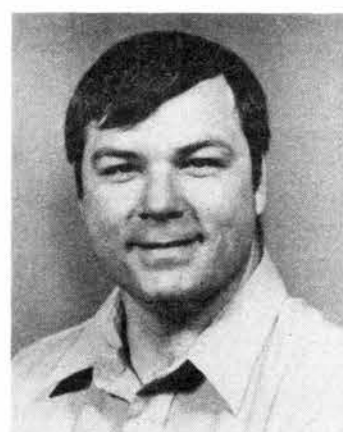
Tom Cleveland (7482) 25



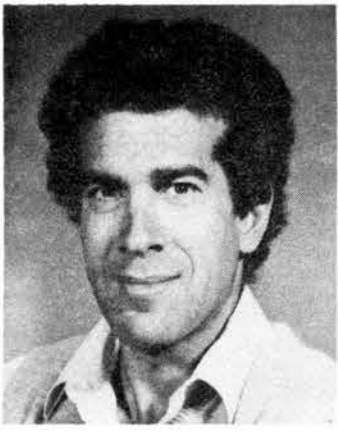
Andrew Rogulich (5123) 10



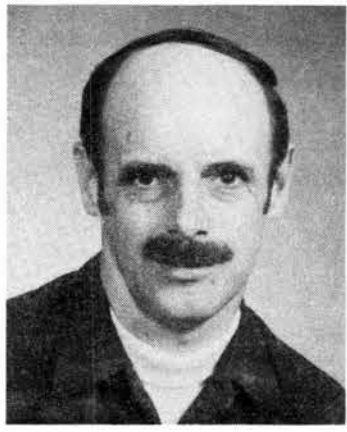
Conrad Lucero (7265) 10



Steve Montgomery (1533) 10



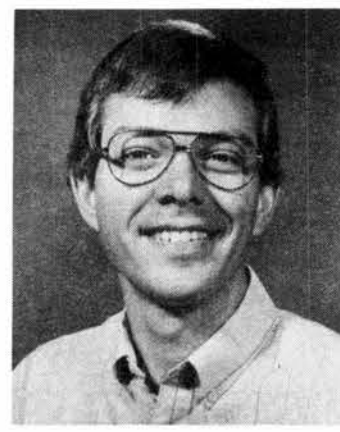
Barry Marder (1231) 10



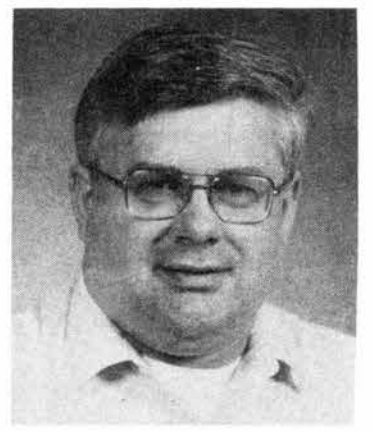
Don Swanson (8176) 25



John Benson (7251) 30



Kent Biring (6257) 10



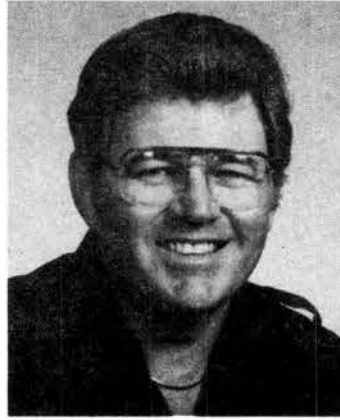
Duncan Tanner (8471) 25



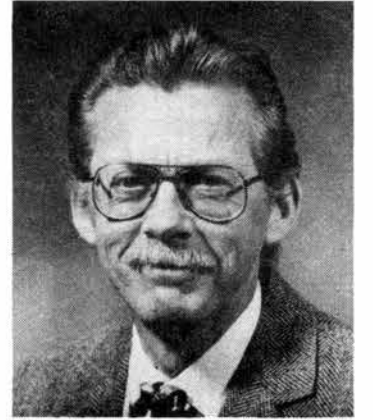
Howard Austin (7126) 40



Jerry Miller (5145) 10



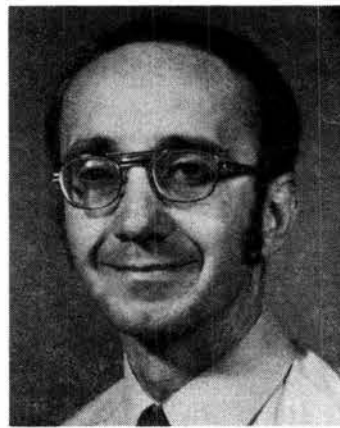
Jack Casey (8131) 25



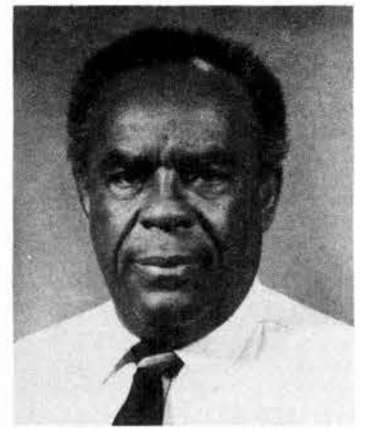
Dick Braasch (1621) 25



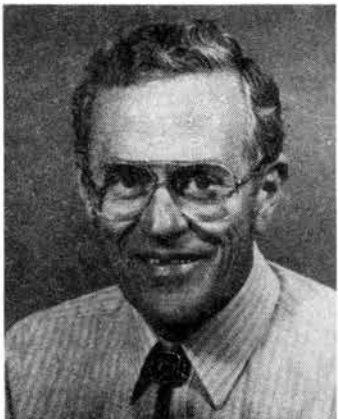
Ernest Niper (5242) 30



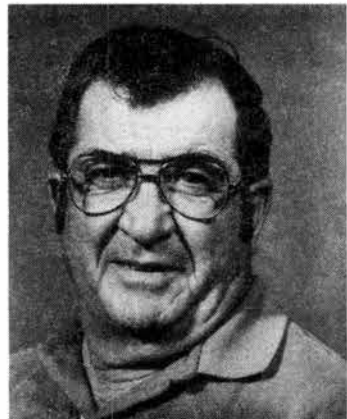
John Cerutti (7811) 10



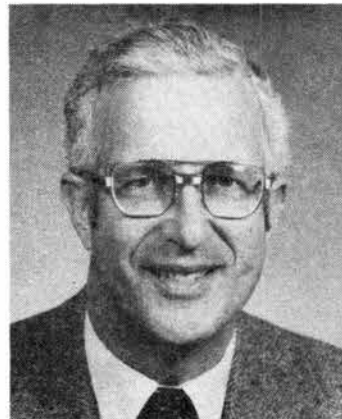
Roscoe Williams (3429) 20



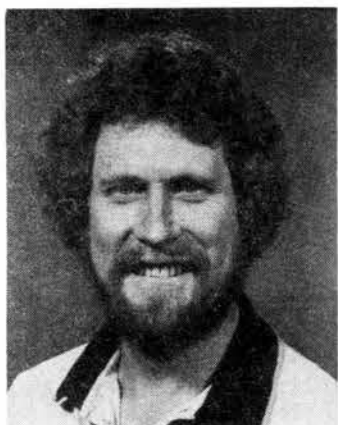
Dick Wahlberg (5215) 30



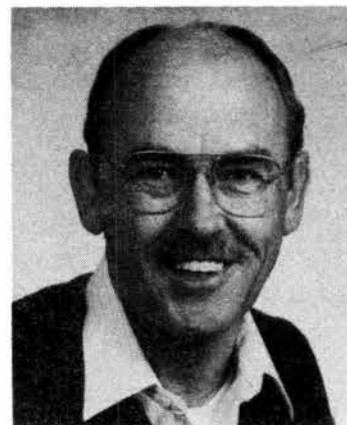
Matt Bustos (3423) 35



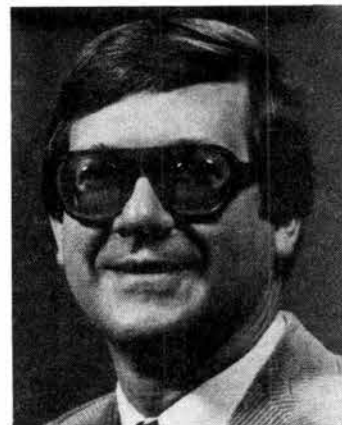
Alec Willis (8444) 25



Steve Sanderson (5242) 10



Elmer Smith (7132) 25



Don Thalhammer (7521) 10



Tom Edrington (7550) 25



"An April fool may seem the most unscientific of creatures, but he evokes one of medicine's great unsolved mysteries: laughter. Laughter is unique, explains Donald Black; it is both a physical reflex (as in tickling) and a voluntary reaction. It implicates the entire body. In addition to the familiar facial contortions — the bared teeth, puffed cheeks and bulging, sparkling eyes — laughter provides skeletal muscle contractions and elevates the pulse. And the whole show is mediated by the brain's hypothalamus. No one really knows why laughter evolved. Darwin thought it served to discharge excess tension. Ethologist Konrad Lorenz thinks it diverts aggression and produces social unity. Can laughter cure disease? Because it's unpredictable, clinical tests are difficult. Still, admits Black, 'people seem to feel better and more relaxed after laughing.' "

Science Digest, Aug. 85

Family Day Oct. 18

Sandia Albuquerque's next Family Day, the sixth since 1959, is set for Oct. 18. Attendance will be limited to employees, retirees, on-site contractors, and their immediate family members. More details will be announced later.

Congratulations

Cathy (3462) and Michael (3434) Benavidez, a daughter, Christina Marie, Feb. 18.

Maria (3461) and Gary (2852) Owens, a son, Owen Tyler, Feb. 24.

JoAnn and Mark (1265) Kiefer, a son, Scott Robert, Feb. 18.

UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS

Deadline: Friday noon before week of publication unless changed by holiday. Mail to: Div. 3162.

Ad Rules

1. Limit 20 words, including last name and home phone.
2. Include organization and full name with each ad submission.
3. Submit each ad in writing. No phone-ins.
4. Use 8 1/2 by 11-inch paper.
5. Use separate sheet for each ad category.
6. Type or print ads legibly; use only accepted abbreviations.
7. One ad per issue per category.
8. No more than two insertions of same ad.
9. No "For Rent" ads except for employees on temporary assignments.
10. No commercial ads.
11. For active and retired Sandians and DOE employees only.
12. Housing listed for sale is available for occupancy without regard to race, creed, color, or national origin.

MISCELLANEOUS

CRAFTSMAN 10" TABLE SAW w/accessories, \$250, or trade for 10" radial arm. Blankenship, 281-2257.

ALUMINUM CAMPER SHELL for 7-1/2' import truck, \$175. Roeschke, 298-0365.

EARLY AMERICAN WING BACK ROCKER, swivel, maple w/green tweed, \$75; Hummel Flower Madonna. Benson, 884-5059.

TTX-3000 DISPLAY TERMINAL/KEYBOARD, may be upgraded to PC, \$250; J-CAT 300 baud modem, \$80. Williams, 243-2136.

MEDITERRANEAN SOFA, two sections, \$75; Wurlitzer spinet piano w/bench, \$750. Archuleta, 298-9018.

BEDROOM SET: dresser, nightstand, headboard, mirror, \$350; coffee table and end table, \$100. Helling, 345-0678 or 281-5536 after 5.

YOUTH SADDLE, \$75; Schwinn bicycles, \$35 each; bee hives, \$25 each; shotshell reloader, \$10; chain saw w/accessories, \$200. Dean, 299-3281.

LANE BEDROOM SET: Golden West pool table w/lamp; Elna sewing machine; Marcy exercise gym; more. Brosseau, 294-4731.

SOFA, gold color, \$150 OBO. Kidd, 256-1020.

MICROWAVE OVEN, Sanyo, .53 cu. ft., new, \$95. Bicycle, 12-spd., new, \$90. Walker, 821-5938.

ANTIQUA EASTLAKE DINING TABLE, solid quarter sawn oak, three leaves, five original cane-seat chairs, at 1982 appraisal. Hellmann, 821-0357.

COMMODORE 64 COMPUTER, 1541 drive, Olympia daisy printer, interface, accessories, ideal for word processing, \$600 OBO. Kureczko, 298-1577.

LEAN MACHINE EXERCISER, 48 resistance exercises, cost \$500, yours for \$200. Dionne, 262-0160.

KING SIZE WATERBED, solid pine, complete, \$150. Petersen, 296-4774.

JACK STANDS, automotive, 4000-lb. capacity, 4-position adjustment from 11-1/2" to 16-1/2" high, \$4 for the pair. Schkade, 292-5126.

COMPUTER MONITOR, Amdek 1+, 14", color composite, anti-glare screen, one year old, \$250. Per-

son, 822-0625.

NEW TRUCK CAMPER-HANDLING JACKS, \$60; rugged wooden desk, \$24; antique chair needing reupholstering, \$15. Cole, 298-1464.

BEDROOM SET: queen size bed + mattress, dresser w/mirror, \$400. Randour, 298-5684.

TWO EACH: bunk beds, dressers, desks for school-age children, maple, \$125. Mendel, 265-3840.

5-GAL. WATER CANS, \$6; GE oven, \$10; Rainjet sprinkler riser and heads, \$2; swinging weed cutter, \$5. Mills, 299-2130.

TAP SHOES for dancing or clogging, size 7-1/2N, paid \$20, used twice, now \$15. Hines, 821-8592.

GIRL'S BEDROOM SUITE, off-white, \$100; stereo combination, Panasonic, \$30; grill, Weber kettle, 22", \$20; basketball pole/bracket, \$10. Schmitt, 884-7882.

HEATILATOR, zero clearance fireplace, never used, \$50. Kolb, 281-1570 after 6.

SINGER SEWING MACHINE, Model 750, reconditioned and cleaned, in large walnut desk cabinet, extras, \$275. Marceau, 255-2343.

WOOD-BURNING STOVE, Forester, airtight, no glass, heats 2200 sq. ft., brand new, cast iron, black, \$400. Pritchard, 299-3543.

WINCHESTER MODEL 70, .30-06, includes 4X Weaver scope, strap and case, \$325. Swanson, 884-8650.

UNMOUNTED STEREO SPEAKERS, Electrovoice SP12B, 16-ohm, two-way, 30 watts average, 30-11,000 Hz, 12", barely used, new \$220/pr, want \$100/pr. Blake, 881-1663.

WATERBED, queen w/headboard, \$100; sofa, 3-piece, \$75; Chev. 250 6-cyl. complete rebuild kit w/new block, \$250. Marquez, 299-3198.

LEATHER SOFA & CHAIR, tan w/wood trim, modern style, \$750. Erickson, 296-0126.

SEALY QUEEN MATTRESS/BOX SPRING, \$175; Porta-Crib, complete, \$25; B&W 19" TV, \$45; easy chair, \$45. Duvall, 881-4406.

REALISTIC SOLO 3 STEREO SPEAKERS, matched pair, wood, 13 x 12 x 22, Garrard 50MkII turntable, make reasonable offer. Flaxbart, 898-2010.

ROCKING CHAIR, hardwood w/gold-colored cushions, \$25; three pink bathroom rugs, \$8 each. Drake, 299-1209.

FISH AQUARIUM, 20-gal., complete w/stand, lamp, pump, filter, hoses, \$35. DeReu, 821-6063.

CAMERA, Pentax 6 x 7 (medium format), 2 lenses, aluminum case, UV filters. Bechdel, 293-8709.

RUGER .357 mag. security six, double-action, 4" bull barrel blue, new, still in box, \$225. Schaub, 265-0004.

CARPET, approx. 1500 sq. ft., make offer; metal fence posts, 7-ft., \$4 each. Gallegos, 294-0233.

CURTAINS, kitchen, cafe, w/hardware; two pair drapes w/hardware; lawn spreader; vacuum; screens; misc. items. Switendick, 255-1003.

ATARI PRINTER, Model 1027, letter quality, still in box. Shortencarier, 292-3575.

CHILDREN'S CLIMBING TOWER, \$25. Caskey, 294-3218.

HOMELITE CHAIN SAW, 2.6 cu. in., 16" bar, used 4 times, w/carrying case and woodcutter's kit, \$130. Reinhardt, 296-1815.

MOTORCYCLE RADAR DETECTOR, Fox XKMR, \$80. Stephenson, 299-3914.

SPEAKERS, 6 x 9, oval, 3-way, new, in

box, automotive-type, both pairs \$36. Marchi, 291-9681.

ULTRALIGHT Quicksilver, Cyuna 430 w/radio, helmet, instruments and extra prop., \$2000. Vaughn, 298-5919.

CRAFTSMAN power-propelled reel mower, catcher, gas can, \$100. Tufts, 255-9663.

DOG HOUSE, large, suitable for German Shepherd, carpet, \$30 OBO. Mills-Curran, 822-1610.

COFFEE TABLE, \$75; ceiling fan w/fixture, \$30; swivel rocker, \$25; console TV, needs work, \$20; baby stroller, \$30. Sanchez, 897-0743.

SAILBOAT, 22-ft. Catalina, w/trailer, outboard, head, galley, dinghy, lights, many extras, \$6500. Cochiti Marina slip available. Horton, 883-7504.

SOFA, yellow velvet, 3-cushion, 90" long, \$195. Hoeke, 881-6335.

SOFA, olive green, \$85. Paddison, 255-1806.

MALE SCHNAUZER, 3 years old, neutered, salt & pepper, purebred, \$175. Helmick, 292-3718.

CARPET, used, 12' x 18', plus smaller pieces, light blue plush, \$25. Dipold, 821-5750.

AKC ENGLISH SPRINGER SPANIEL PUPPIES, show quality, born 2/22/86, available for viewing and choice, delivery after weaning. Woodfin, 281-2702.

NETHERLAND DWARF MINIATURE RABBITS. Half-grown white tom cat, free. Sharp, 243-1498.

BEDROOM SET, white, double bed, dresser, mirror, desk, chair, spring, mattress, \$250; loveseat, nearly new, natural color, \$250. Mozey, 822-0296.

TRANSPORTATION

'72 COUGAR, 2-dr., 8-cyl., PS, PB, RH, AC. Boyer, 298-3893.

'80 TOYOTA Corona str. wgn., PS, PB, AC, cruise, \$3100; '82 Ford 250 conversion van, CB, PS, AC, icebox, \$7950. Padilla, 842-6035 or 831-1358.

'81 SUZUKI GS850G, shaft-drive, 8K miles, Vetter fairing, two helmets, \$1300 OBO. Chavez, 292-5475 or 299-5102.

'84 FORD E150 van conversion, all accessories, 302 V-8, 24K miles, \$13,900 OBO. Brosseau, 294-4731.

BICYCLE, Schwinn, man's, 10-spd., \$50 OBO. Kidd, 256-1020.

'73 COMET, rebuilt 6-cyl. engine, 2-dr., manual transmission; '71 Pontiac, V-8, AT, AC, 4-dr. McGuckin, 299-1342.

'72 PLYMOUTH Duster, reupholstered, 91K miles, \$700. Unwin, 884-5667.

TOURING BICYCLE, 18-spd., Bertin C35, 61cm, extensively customized, many extras, spare parts/tools, over \$1100 invested, sell \$550 OBO. Rathbun, 888-3344.

'80 PONTIAC Sunbird, AM/FM cassette, AC, 31.5K miles, \$2150. Kelly, 255-7226.

GIRL'S 20" Schwinn bicycle. Wowak, 298-9398.

'85 FORD Ranger LWB 4X4, AC, cruise, 4-cyl., PS, PB, many extras, 13K miles, 23 mpg, assumable 8.8% loan, \$9950. Bendure, 298-4763.

BICYCLE, Schwinn Varsity, 10-spd., \$30. Schmitt, 884-7882.

'81 CHRYSLER LeBaron, PS, PB, new AM/FM radio, cassette player, new tires, one owner, 37K miles, \$3995. Lucero, 299-7933.

'79 CAMARO, 6-cyl., 3-spd., new brakes, clutch, \$1800; complete

396 engine, \$200. Dickenman, 892-9561.

'77 PEUGEOT Moped, 50cc, red, needs engine work, best offer. Ripi, 293-6067.

'74 AUDI Fox, 4-dr., automatic transmission, new battery, clean interior, \$550 OBO. Carrillo, 292-7283.

'83 LTD, 43K miles, AT, AC, AM/FM, tilt, cruise, 3.8-liter V-6, asking \$5300. Whalen, 822-0413.

BICYCLE FRAMESET, Guerciotti, 61cm, Columbus SL/DB tubing, stiff frame w/extras, \$275. Loucks, 281-9608.

'85 CAMARO Z28 5.0-liter V-8, 5-spd., AC, stereo, tilt wheel, power windows, 5-year warranty, 600 miles, metallic gray, \$11,000. Sutherland, 296-4922.

'80 RABBIT, 4-dr., AC, AM/FM stereo cassette, sunroof, 61K miles, \$2250. Linke, 293-7808.

'80 FORD pickup, 6-cyl., 4-spd., AC, cruise, fiberglass camper shell, one owner, 72K miles, \$3800. Lukens, 299-1271.

'81 DODGE Aries, 4-cyl., 4-dr., AC, AT, AM/FM cassette, 35.5K miles, \$2700. Hey, 898-6679.

'53 FORD 1/2-ton pickup, all original, 6-cyl. (rebuilt), AT, \$2800 OBO. Schaub, 265-0004.

'79 CHEV. Monza, 2-dr. notchback, 4-cyl., 4-spd., PS, radials, beige, \$1700. Pletta, 831-2926.

'82 TOYOTA pickup, AT, LWB, AM/FM, AC, book price \$4400, make offer; '83 Datsun Maxima, loaded, \$9300. Gallegos, 294-0233.

'81 YAMAHA 650 Special II, \$650 OBO. Kolb, 281-1570 after 6.

'81 PONTIAC Phoenix LJ-V6, FWD, AT, PS, AC, AM/FM cassette, \$3300. Dudley, 823-2650.

'59 THUNDERBIRD Classic, needs restoring, sell or trade for pickup. Walsh, 298-4887.

'80 CHEV. 3/4-ton 4X4, utility bed, extras, \$3825; '81 Yamaha 650 Special, fairing, suitcases, loaded, 7K miles, \$995. Rarrick, 892-7483.

'68 COUGAR XR7GT, \$1750 OBO; '81 Honda CX500D, low miles, many extras, \$1100 OBO. Zirzow, 294-7296.

'80 CADILLAC Coupe De Ville, new tires, leather interior, metallic brown, loaded, \$7500 OBO. Baca, 831-3354.

'76 TOYOTA Celica hatchback, 5-spd., sunshade, AC, AM/FM, Sears radials, new headliner, idler arms. Mills, 299-2130.

'77 CUTLASS Supreme, 2-dr., V-8, AT, AC, PS, PB, sport wheels, \$1900. Follstaedt, 299-5941.

'81 FORD Escort, 4-spd., 2-dr., AM/FM, 52K miles, \$2500 OBO. Bovard, 892-7676.

'78 YAMAHA XS650, extras, \$900. Mills-Curran, 822-1610.

'79 COUGAR XR7, 2-dr., AC, AT, PS, PB, cruise, stereo/cassette, new radials, 65K miles, \$2500. Mills, 299-4752.

'82 CHRYSLER LeBaron, low miles, loaded, \$5200. Jaramillo, 255-8288.

'84 JAYCO camping trailer, asking \$2400. Perrine, 293-1429.

'73 PINTO, 4-spd., \$750; '65 Chev. pickup, 4-spd., camper shell, \$750; both negotiable. Allen, 299-1410.

'78 PONTIAC Gran Prix, Economy V-8, AC, PB, PS, cruise, \$2200. Schubeck, 821-3133.

'76 CHEV. Malibu Classic, 4-dr., 305 V-8, AC, AT, PB, PS, tilt wheel, AM/FM radio, 120K miles, asking \$1000. Hesch, 268-6122.

'84 NOMAD travel trailer, 24' bunkhouse style, used 8 times. \$8500 OBO. Hastings, 821-0384.

'74 FORD Maverick, 4-dr., AC, \$900, negotiable. Hunter, 294-2877.

'84 FORD Ranger, 4-cyl., 4-spd., over-drive, fiberglass shell, AM/FM, new tires, \$5300. Foltz, 291-0051.

'83 LINCOLN Continental Mark VI, loaded, low mileage. Furaus, 822-0146.

REAL ESTATE

HIGHWAY FRONTAGE, 10 to 105 acres, Moriarty \$2K to \$3.3K/acre, or trade for mountain or Sandia Heights homesite. Luera, 821-2618.

HOLIDAY PARK, 3-bdr., 2200-sq. ft., extra large rooms, \$94,000 firm. Smith, 299-7506, after 5 and weekends.

AODE on two irrigated acres in Bosque Farms area, 2700-sq. ft., beamed ceilings, exposed adobe walls. Skinner, 869-6609.

LARGE 5-bdr. home close to Sandia, 2600-sq. ft., portal in back, large den, \$105,000. Stromberg, 255-6131.

BELEN, 3-bdr. home, den, laundry room, ceramic tiled bathrooms, detached heated garage w/workout room and bath, other extras, \$58,000. Trujillo, 864-3016.

PUEBLO-STYLE attached solar adobe home on approx. 1/3 acre in North Valley, brick floors, vigas throughout, \$102,000. Tieszem, 898-7336.

RIDGECREST AREA, 3-bdr., LR, great room, DR, large kitchen, corner lot, low down, assumable, near base/UNM, \$78,000. Jaramillo, 255-8288.

NE HEIGHTS near Jackson School, 1-1/2 years old, 2-bdr., 2 bath, fireplace, cathedral ceilings, brass fixtures, quiet neighborhood, \$94,500. Jacot, 296-1428.

4-BDR. custom home in Academy Hills, sunken living room, formal dining room, spacious master suite, 9-1/4% assumable loan. Furaus, 822-0146.

WANTED

GOLF CLUBS, any full or nearly full set, no condition too bad. Potts, 821-1013.

INEXPENSIVE SEWING MACHINE in working order. Hessel, 296-9124.

SHOCK COLLAR for dog training. Walker, 821-5938.

PC: C64 or better, functional; keyboard, disc drive or tape, monitor, printer, manuals, and cables. Barnum, 298-2865.

SWING SET; Schwinn exercise bicycle. Dionne, 262-0160.

PORTABLE ELECTRIC DRILL; step ladder. Cole, 298-1464.

GARBAGE DISPOSAL, under sink, good condition. Moss, 298-2643.

DOUBLE-DOOR fridge, washer and dryer (heavy duty), pillow sofa, twin bed, child's swing, chest freezer. Dubicka, 821-6957, leave message for Apt. 18G.

SMALL SURVEYING LEVEL or transit level, associated tripod and level rod, David White or similar. Hall, 299-0009.

DATSUN pickup body parts, '69-'73, front fender (passenger) and bumper, Model 521, in reasonable condition, will remove. Blake, 881-1663.

GOOD HOME for 15-month-old male cross Australian Blue Heeler and Dingo Brush Dog, needs room to run. Prusak, 298-7782.

PORTABLE DISHWASHER, working or repairable. Jones, 281-3617 after 6 p.m.

LOST AND FOUND

LOST: gold-post earring w/small diamond in center. Padilla, 831-3500 after 5:30.

Leprechauns Celebrate Monday

EVERYBODY'S IRISH NEXT MONDAY, and the leprechauns tell us you can find some real treasures if you hurry on over to the club lounge right after work. There's green beer, free snacks, 50-cent draft beer (not green), and special prices on other drinks. Sure and begorra, those Irish eyes are smilin' on this once-a-year bash — don't miss out! Sing along with Casey Sean O'Roherty (alias Bob Banks) on good old Irish tunes from 6-8.

IT'S PRIME RIB or poached halibut on tonight's two-for-one dinner special. Your choice — two dinners for \$14.95. Afterwards, soar to the strains of the Western Flyers from 8-12. Next Friday's special dinner deal features filet mignon or fried shrimp; Southside provides the dancing/listening music.

FOLKS ARE LINING UP for those C-Club Sunday brunch/tea dances. Join the queue this Sunday, March 16, for a \$5.95 brunch buffet served from 11-2, and mellow melodies from the Bob Weiler band from 1-3.

THE T-BIRD SHUFFLE isn't some new dance step. It's what happens at least twice a month when the Thunderbird card sharks get together in the Eldorado room, starting at 10:30 a.m., for fun and games. They're putting it all together next Monday, the 17th (probably just an excuse to get an early start on the St. Patrick's Day party!). An ace informant tells us the April card sessions are set for the 7th and 21st, so mark your calendar. The Thunderbird Board of Directors also meets at the Club on March 17 at 2 p.m.; all T-Birds welcome.

THE GREEKS TAKE OVER the Club on March 25 after the Irish have moved out. That's right — toss on your toga, because it's Greek Night, with all sorts of special food and entertainment on tap. A \$5.95 buffet from 6-8 p.m. features exotic Greek dishes like chicken riganato, fish plaki (baked fish with vegetables), rice pilaf, spanakopeta (spinach pie), and an exciting Greek salad. Also available: those mysterious Greek wines and liqueurs to accompany your meal (wasn't it Zorba who zeroed in on ouzo?). The Palamania Dancers, in full Greek costume, provide a real show from 8-8:30. They'll perform all kinds of Greek dances, and you'll have a chance to try those intricate steps too, with Palamania help. And that's not all — if you're not into the Athens Turkey Trot, Bob Weiler and his band will provide more familiar music for dancing until 10.

THOSE THURSDAY NIGHT SPECIALS, new at the Club this month, are packing the house. No wonder — the deal can't be beat! Where else in town can you find a buffet with all-you-can-eat BBQ ribs and chicken for \$4.95, plus 50-cent draft beer and margaritas? Nowhere, that's where! Bring the family — kids 12 and under eat at half price; guests welcome too. No extra charge for the musical entertainment provided by Soundwave from 6-10 on both March 20 and 27.

WE SAID IT BEFORE, and we'll say it again. Space is limited for that super Easter brunch buffet at the Club. If you haven't signed up yet, you'd best call the office at 265-6791 right now. The buffet, served from 10 a.m.-2 p.m., features Virginia baked ham with cherry sauce, carved baron of beef, fried white fish, assorted salads and fresh fruit, all kinds of vegetables, and — for the breakfast traditionalists among you — scrambled eggs, sausage, hash browns, and green chile salsa. Choose from a variety of great desserts to top it all off. Beverages available too, including a glass of complimentary champagne or house wine. The price is right: \$8.95 for adults, \$4.50 for children 12 and under (except for the littlest ones — kids 2 and under eat for free).

IT'S EGGZACTLY WHAT YOU'D EXPECT from the folks at the Club who plan those great parties for kids. The annual Easter egg hunt for members' children (ages 8 and under) is set for Saturday, March 29, from 10 a.m. to noon. There's an egg roll (not the kind you get in the Chinese restaurant) scheduled too. Continuous cartoons in the ballroom for the kids who've had enough of eggs for the moment, and special prizes for the sharpest of the happy hunters and racing rollers in different age categories.

TRAVEL — The second busload for that trip to Las Vegas April 20-23 is filling rapidly, so you'd better sign up now! For \$122/person you get round trip on the bus, three nights at the Maxim Hotel in LV, some meals, a tour of Hoover Dam, a stop at Sam's Town in Laughlin (south Nevada's "Little Las Vegas"), and snacks and drinks on the bus throughout the trip.

Carlsbad Caverns and El Paso/Juarez — Get out those miners' lamps and/or flashlights and come along on this jaunt, which includes visits to both old and new caves at Carlsbad Caverns and a stop in El Paso/Juarez on the return trip. It's all set for May 9-11. If climbing around Carlsbad's undeveloped new cave on May 11 doesn't sound like your cup of tea, you can substitute a tour of the Living Desert State Park or join the R&R group at the hotel. A real bargain at \$108/person.

Autumn Trips — It's not too early to start thinking about traveling to all sorts of places next fall, when things aren't quite so crowded. Some destinations already in the planning stage: the Ozarks, Canyon de Chelly, and Laughlin, Nev./Lake Havasu City.

And, speaking of travel to exotic places, the C-Club Travel Committee will host a travelogue on Peru on Wednesday, April 9, at 7 p.m. Elsa delaPuente-Schubeck, wife of Don Schubeck (3422), will present the program. She's a native of Peru, and has traveled extensively in South America. You'll be able to see samples of Peruvian art that Elsa and Don brought back from two visits to Peru last year. Elsa says she'll also perform a Peruvian dance accompanied by appropriate music.



GEORGE SAMARA, manager of Condensed Matter and Surface Science Research Department 1130, has been elected to membership in the National Academy of Engineering. Academy membership honors those who have made important contributions to engineering theory and practice, and those who have demonstrated unusual accomplishments in new and developing fields of technology. George was cited by the NAE "for contributions to the understanding of dielectric, ferroelectric, and ferromagnetic materials and their relationship to applications." He and former VP John Galt were among the 73 engineers elected recently. Among NAE's 1289 members are one other current Sandian, Executive VP Tom Cook (20), and three retirees: former presidents George Dacey and Morgan Sparks, and former VP Gene Reed.

Welcome

Albuquerque

Donald Mitchell (7266)
Steven Wilde (5314)
James Hutchins (2627)
Deborah Matlock (22)
Joan Nasiatka (21)
Ronald Pate (1245)
Lisa Spears (22)
Nancy Spencer (22)

Arizona

Paul Umbriano (2625)
Gerardo Aguirre (2343)

Indiana

Jeffrey Morgan (5143)
Douglas Remschneider (5252)

Kansas

Bradley Wood (2813)

New Jersey

Thomas Brennan (1141)

New Mexico

Frederick Maish (7525)
Geneva Sachs (21)
Bradley Smith (2148)

Ohio

Daniel Sprauer (2313)

Oklahoma

David Marks (5142)

Oregon

Kurt Hueller (5251)

Pennsylvania

Thomas Levan (2364)

Tennessee

Robert Manus (7843)

Texas

Kenneth Washington (6449)
Joe Weatherby (1521)
Jeanne Ramage (7543)

Wisconsin

Charles Croessmann (6248)
Jeffrey Everts (2312)